DISPATCH

CLASSIFICATION: C-O-N-F-I-D-E-N-T-I-A-L

PROCESSING ACTION: MARKED FOR INDEXING / NO INDEXING REQUIRED / ONLY QUALIFIED DESK CAN JUDGE INDEXING / MICROFILM

TO: Director of Logistics

INFO. 25X1A: Chief, [redacted]

FROM: Chief [redacted] 25X1A

SUBJECT: SUPPORT/ENGINEERING
Air Conditioning Problems - [redacted]

ACTION REQUIRED - REFERENCES

25X1A
A.
B. [redacted] 4
C.

1. As requested in Reference A, [redacted] 25X1A visited the subject site and conferred w[redacted] personnel concerning the air conditioning problems. At that time it was learned that [redacted] rwarded to Headquarters a report by an engineer fr[redacted] on this subject as an enclosure to reference B. This report offered three possible methods of alleviating present problems. In addition, [redacted] personnel included a fourth plan for consideration. 25X1A 25X1A

2. The recommendations requested in paragraph 3a and 3b of the enclosure to reference A are attached. Comments on paragraph 3c of the enclosure to reference A were included in reference C.

[redacted] 25X1A

25X1A

Attachment
[redacted] Air Conditioning h/w

Distribution:
Orig & 1 - Addressee w/att h/w
1 - Chief, [redacted] w/att h/w
25X1A

GROUP 1
Excluded from automatic downgrading and declassification

CROSS REFERENCE TO: 25X1A

DISPATCH SYMBOL AND NUMBER: [redacted]

DATE: 30 August 1966

CLASSIFICATION: C-O-N-F-I-D-E-N-T-I-A-L

HQS FILE NUMBER

25X1A

[redacted] AIR CONDITIONING

I. BACKGROUND

A. The efficiency and operational capabilities of the [redacted] have been and are being impaired due to: 25X1A

1. Lack of reliability of mechanical cooling equipment.

2. Excessive scaling of condenser surfaces with a resultant reduction in efficiency.

3. Poor air distribution with inadequate air quantities for minimum cooling of some operational areas.

25X1A

B. As a result of the above problems, [redacted] has at times been forced to shut down much of its equipment when the air conditioning system failed. Even with all cooling equipment operating, the facility is experiencing high maintenance costs from overheating of equipment located in areas having insufficient air distribution to cope with the heat generated.

II. POSSIBLE IMPROVEMENTS OF PRESENT SYSTEM

A. The mechanical equipment has failed on various occasions due to compressor failures, pump failures, and bearing failures. Although good maintenance pratices should keep such failures to a minimum, an occasional interruption in operation is inevitable with the present system. If the present equipment is to be retained, provision should be made for stand-by units of all components of the systems, e.g. compressors, circulating pumps, condensers, air handlers, and controls.

B. The cooling capacity of the water-cooled units is reduced much of the time due to excessive scaling of condenser surfaces. The [redacted] is now replacing evaporative condensers with air cooled condensers for [redacted] air conditioners as the best solution to the scaling problem. The replacement of existing [redacted] water cooled condensing systems by air cooled units would eliminate the major maintenance problem of the existing condensers. 25X1A

25X1A

25X1A

C. The present air distribution system in the operational area is not compatible with the equipment configuration and its related heat loads. The air-handling system has been rebalanced to meet, as much as possible, changes in heat loads within the area. However the ducts are too small in some locations to provide adequate quantities of air for proper cooling. Some high-temperature problems could be alleviated by the replacement of existing ceiling diffusers with new diffusers having adjustable directional air flow so as to direct maximum quantities of available air toward high temperature areas. Some branch ducts could be enlarged and/or extended and additional diffusers installed to increase the effective area covered by each branch within the limitations of the duct air-handling capacities. Such modifications would alleviate the problem in some areas, but to provide adequate cooling to the entire area, a complete re-design of the ductwork would be necessary.

25X1C III [redacted] REPORT 25X1A

25X1C The report on [redacted] air conditioning problems which was prepared by [redacted] has been reviewed in the FE Engineers office. The following adjustments should be made to the report:

A. Appendix C. In calculating the total heat gain, that of the MAX-1 equipment, which is 106,605 BTU, was not included in the total electronic equipment load of 316,000 BTU. The addition of the MAX-1 equipment to the basic calculations increases the total present building load to about 65 tons, and the projected load to about 85 tons.

B. Appendix A. With the equipment load of MAX-1 included in the total load, the budget costs for plans No. 1 and 2 will be increased to about $[redacted] respectively. 25X1A

IV RECOMMENDATION FOR NEW SYSTEM

A. In order to provide maximum reliability and flexibility in operational areas where required, adequate cooling capacity for future loads, the following air conditioning system is recommended:

1. Chillers - Provide two chillers in a new machinery room, each of adequate capacity to handle the projected heat load of 85 tons. (A possible alternative would be to provide two chillers of adequate capacity to handle the present heat load of 65 tons in a new machinery room having sufficient space for the future addition of a third 65 ton chiller. The addition of

the third chiller, when required, would provide complete back-up for either of the first two units, which, when operated simultaneously, would provide for a load increase of 100 percent or 130 tons.)

2. Fan-Coil Units

a. In operational spaces, provide an adequate number of units to ensure good good air distribution to all spaces. The chilled water lines and fan-coil units should be sized to provide for increased heat loads. Primary temperature control should be accomplished using a thermostatically controlled modulating valve for each of about five zones, with manually controlled fan speed at each unit for local temperature control.

b. Replace the air handling unit in Room 116 with a cooling coil and fan to provide cooling for the office wing of the building and to supply necessary ventilating air to the remainder of the building through the existing ducts.

B. The system recommended above should provide maximum flexibility in the operational areas. By using a single fan-coil unit in the existing ductwork serving the office wing and a portion of the operational space, adequate cooling for the offices as well as ventilating air for the entire building can be provided at a minimum cost. The cost of this system is estimated to be about [redacted]

25X1A